

REMARKS

By this Amendment, claims 1, 6-8, 17-18, and 22 are amended. Claims 23-25 are withdrawn from consideration as a being directed to a non-elected invention. Support for the amendments to claims 1, 17-18 and 22 may be found, for example, in paragraph [0007] and [0036] of the specification. No new matter is added. Accordingly, after entry of this Amendment, claims 1-25 will remain pending in the patent application. Reconsideration and allowance of the present patent application based on the foregoing amendments and following remarks are respectfully requested.

Applicant appreciates the Examiner's indication that claim 16 would be allowable if rewritten in independent form. However, Applicant respectfully submits that claim 16, which depends from claim 1, is patentable for at least the same reasons provided below for claim 1.

Claims 1-7, 10-15 and 17-21 were rejected under 35 U.S.C. §102(e) based on Kaminsky *et al.* (U.S. Pub. No. 2004/0233526) (hereinafter "Kaminsky"). The rejection is respectfully traversed.

Claim 1 is patentable over Kaminsky at least because this claim recites an optical element comprising, *inter alia*, a substrate having at least one surface on which a layer of material is disposed, the layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength  $\lambda$  lower than 100 nm and to substantially eliminate a radiation greater than 100 nm. Kaminsky does not disclose, teach or suggest an optical element including these features. Therefore, Kaminsky does not disclose, teach or suggest each and every feature recited by claim 1 and, as a result, cannot anticipate claim 1.

Kaminsky discloses a film including minute particles for use in a backlit display. Kaminsky discloses that the film includes surface features that are configured to transmit light and to operate in the visible spectrum. (*See* paragraphs [0016], [0017], [0019]-[0026]). However, Kaminsky is silent about, among other things, a layer of material that is selected to be at least partially transmissive to radiation with a predetermined wavelength  $\lambda$  lower than 100 nm and to substantially eliminate a radiation greater than 100 nm. Therefore, Kaminsky cannot anticipate claim 1.

Claims 2-7 and 10-15 are patentable over Kaminsky at least by virtue of their dependency from claim 1 and for the additional features recited therein.

Claim 17 is patentable over Kaminsky for at least similar reasons as provided in claim 1, and for the additional features recited therein. Namely, claim 17 is patentable over Kaminsky at least because this claim recites a method for diminishing the intensity of

radiation selected from one or more of VUV, DUV, UV, VIS and IR radiation in a radiation beam of an optical system, the method comprising, *inter alia*, projecting the radiation beam onto at least one optical element comprising a substrate having at least one surface on which a layer of material is disposed, said layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength  $\lambda$  lower than 100 nm and to substantially eliminate a radiation greater than 100 nm. As mentioned previously, Kaminsky is silent about a layer of material including these features. Therefore, Kaminsky cannot anticipate claim 17.

Claim 18 is patentable over Kaminsky for at least similar reasons as provided in claim 1, and for the additional features recited therein. Namely, claim 18 is patentable over Kaminsky at least because this claim recites a device manufacturing method comprising, *inter alia*, passing the radiation through a layer of material disposed on at least one optical element, the layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength  $\lambda$  lower than 100 nm and to substantially eliminate a radiation greater than 100 nm. As mentioned previously, Kaminsky is silent about a layer of material including these features. Furthermore, Applicant respectfully submits that Kaminsky fails to teach or suggest the additional features of claim 18. For example, Kaminsky fails to teach or suggest patterning the beam of radiation and projecting the patterned beam of radiation onto a target portion of a layer of radiation-sensitive material. Therefore, Kaminsky cannot anticipate claim 18.

Claims 19-21 are patentable over Kaminsky at least by virtue of their dependency from claim 18 and for the additional features recited therein.

Accordingly, reconsideration and withdrawal of the rejection of claims 1-7, 10-15 and 17-21 under 35 U.S.C. §102(e) based on Kaminsky are respectfully requested.

Claims 1-3, 5 and 18-21 were rejected under 35 U.S.C. §102(e) based on Ishizawa *et al.* (U.S. Pat. No. 6,870,602) (hereinafter "Ishizawa"). The rejection is respectfully traversed.

Claim 1 is patentable over Ishizawa at least because this claim recites an optical element comprising, *inter alia*, a substrate having at least one surface on which a layer of material is disposed, the layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength  $\lambda$  lower than 100 nm and to substantially eliminate a radiation greater than 100 nm. Ishizawa does not disclose, teach or suggest an

optical element including these features. Therefore, Ishizawa does not disclose, teach or suggest each and every feature recited by claim 1 and, as a result, cannot anticipate claim 1.

Ishizawa discloses a method of forming an optical thin film on a substrate including minute particles of fluoride or oxide to provide high transmittance with respect to a light beam having a wavelength of not more than 300 nm. (*See* col. 8, lines 39-35). Ishizawa is, however, silent about a layer of material that is selected to be at least partially transmissive to radiation with a predetermined wavelength  $\lambda$  lower than 100 nm and to substantially eliminate a radiation greater than 100 nm. Therefore, Ishizawa cannot anticipate claim 1.

Claims 2-3 and 5 are patentable over Ishizawa at least by virtue of their dependency from claim 1 and for the additional features recited therein

Claim 18 is patentable over Ishizawa for at least similar reasons as provided in claim 1, and for the additional features recited therein. Namely, claim 18 is patentable over Ishizawa at least because this claim recites a device manufacturing method comprising, *inter alia*, passing the radiation through a layer of material disposed on at least one optical element, said layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength  $\lambda$  lower than 100 nm and to substantially eliminate a radiation greater than 100 nm. As mentioned previously, Ishizawa is silent about a layer of material including these features.

Claims 19-21 are patentable over Ishizawa at least by virtue of their dependency from claim 18 and for the additional features recited therein.

Accordingly, reconsideration and withdrawal of the rejection of claims 19-21 under 35 U.S.C. §102(e) based on Ishizawa are respectfully requested.

Claims 8-9 and 22 were rejected under 35 U.S.C. §103(a) based on Kaminsky. The rejection is respectfully traversed.

Claims 8-9 are patentable over Kaminsky at least by virtue of their dependency from claim 1 and for the additional features recited therein. Namely, claims 8-9 are patentable over Kaminsky at least because these claims recite an optical element comprising, *inter alia*, a substrate having at least one surface on which a layer of material is disposed, the layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength  $\lambda$  lower than 100 nm and to substantially eliminate a radiation greater than 100 nm. These features are not rendered obvious in view of Kaminsky. Applicant notes that Kaminsky teaches away from these features because Kaminsky discloses that the optical film is configured to operate in the visible spectrum. Furthermore, Applicant notes that the

polymer materials disclosed by Kaminsky would be severely degraded under a radiation having a wavelength lower than 200 nm. For at least this reason, Applicant respectfully submits that there is no motivation or suggestion in Kaminsky to provide this feature.

The Examiner indicated that it would have been obvious to select the heights of the protrusions as recited in the claims. Applicant respectfully disagrees and submits that Kaminsky teaches away from these features. Kaminsky discloses in paragraph [0023] that “if the roughness average of the surface features is less than 3 micrometers then the surface features cannot shape light effectively.” Kaminsky then goes on to indicate that “preferably, the average roughness average of the surface structures is at least 5 micrometers.” (See paragraph [0023]). Clearly, by virtue of specifically teaching that surface structures should have a roughness average of at least 5 micrometers, Kaminsky teaches away from protrusions having a period in the range of 200-5000 nm and a height difference in the range of 10-500 nm. For at least this reason, claims 8 and 9 are not rendered obvious in view of Kaminsky.

Claim 22 recites a lithographic projection apparatus, comprising a radiation system constructed and arranged to provide a beam of radiation; a support structure constructed and arranged to support a patterning structure, the patterning structure constructed and arranged to pattern the beam according to a desired pattern; a substrate table to hold a substrate; a projection system constructed and arranged to project the patterned beam onto a target portion of the substrate; and at least one optical element within a path of the radiation comprising a substrate having at least one surface on which a layer of material is disposed, said layer of material being selected to be at least partially transmissive to radiation with a predetermined wavelength  $\lambda$  lower than 100 nm and to substantially eliminate a radiation greater than 100 nm, wherein the surface of material comprises particles having a diameter in a range of 1-500 nm, and the layer of material has a layer thickness in the range of 10-2000 nm. As mentioned previously, Kaminsky teaches away from a layer of material selected to be at least partially transmissive to radiation with a predetermined wavelength  $\lambda$  lower than 100 nm and to substantially eliminate a radiation greater than 100 nm. Therefore, claim 22 cannot be rendered obvious in view of Kaminsky.

The Examiner conceded that Kaminsky does not expressly disclose “the optical element being used in the projection apparatus, which has inherent elements such as ‘a radiation system,’ ‘a support for supporting a patterning device,’ ‘a substrate table.’” However, the Examiner indicated that “it is the Examiner’s position it would have been

obvious to one having ordinary skill in the art to employ the optical element as suggested by Kaminsky.” Applicant respectfully disagrees for at least the following reasons.

First, Applicant points out that “in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied prior art.” (See MPEP 2112 citing Ex Parte Levy, 17 U.S.P.Q. 2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)). All that is disclosed in Kaminsky is an optical film configured to operate in the visible spectrum. Kaminsky, however, does not teach or suggest anything related to a lithographic apparatus. It is respectfully submitted that the Examiner has failed, in the Office Action, to provide rationale or evidence tending to show inherency.

Second, one skilled in the art would clearly understand that the teachings of Kaminsky are not applicable to lithographic processes because one skilled in the art would understand that lithographic processes use radiation wavelengths outside the visible spectrum. Therefore, one skilled in art would not be motivated to apply Kaminsky’s teachings to lithographic applications.

Third, the Examiner appeared to take Official Notice by concluding that “it is the Examiner’s position that it would have been obvious...to employ the optical element as suggested by Kaminsky.” However, Applicant notes that “it is never appropriate to rely solely on ‘common knowledge’ in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based.” (See MPEP 2144.03 citing Zurko, 258 F.3d at 1385, 59 USPQ2d at 1697). The Examiner is respectfully requested to provide evidence in the record to support an assertion of common knowledge. For at least these reasons, claim 22 cannot be rendered obvious in view of Kaminsky.

Fourth, Applicant respectfully submits that the Examiner’s reliance on In re Aller is improper because the Examiner has not met the requirements of MPEP 2144.04 or MPEP 2144.05 II. B. MPEP 2144.05 II. B states that “a particular parameter **must first be recognized as a result effective variable**, i.e. a variable which achieves a recognized result, **before** the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.” (Emphasis added).

Accordingly, reconsideration and withdrawal of the rejection of claims 8-9 and 22 under 35 U.S.C. §103(a) based on Kaminsky are respectfully requested.

Applicant have addressed all the Examiner’s rejections and objections and respectfully submits that the application is in condition for allowance. A notice to that effect

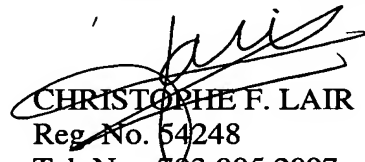
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is earnestly solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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